

Friday, 6 April 2007, 15:54 GMT 16:54 UK

Billions face climate change risk



Billions of people face shortages of food and water and increased risk of flooding, experts at a major climate change conference have warned.

The bleak conclusion came ahead of the publication of a key report by hundreds of international environmental experts. Agreement on the final wording of the report was reached after a marathon debate through the night in Brussels.

People living in poverty would be worst affected by the effects of climate change, the gathered experts said.

"It's the poorest of the poor in the world, and this includes poor people even in prosperous societies, who are going to be the worst hit," said Rajendra Pachauri, chairman of the Intergovernmental Panel on Climate Change (IPCC).

Mr Pachauri said those people were also the least equipped to deal with the effects of such changes.

Key findings

READ THE IPCC FINDINGS

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[Analysis: Stark picture](#)

[Map: Climate change impact](#)

Outlining the report's findings, Martin Parry, co-chairman of IPCC Working Group II, said evidence showed climate change was having a direct effect on animals, plants and water.

"For the first time, we are no longer arm-waving with models; this is empirical data, we can actually measure it," he told a news conference.

Key findings of the report include:

- 75-250 million people across Africa could face water shortages by 2020
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- Crop yields increase could increase by 20% in East and Southeast Asia, but decrease by up to 30% in Central and South Asia
-
- Agriculture fed by rainfall could drop by 50% in some African countries by 2020
-
- 20-30% of all plant and animal species at increased risk of extinction if temperatures rise between 1.5-2.5C
-
- Glaciers and snow cover expected to decline, reducing water availability in countries supplied by melt water

The report states that the observed increase in the global average temperature was "very likely" due to man-made greenhouse gas emissions.

The scientific work reviewed by IPCC scientists includes more than 29,000 pieces of data on observed changes in physical and biological aspects of the natural world.

Eighty-nine percent of these, it believes, are consistent with a warming world.

Year of reports

Scientists and politicians have welcomed the report.

"This further underlines both how urgent it is to reach global agreement on reducing greenhouse gas emissions and how important it is for us all to adapt to the climate change that is already under way," European Environment Commissioner Stavros Dimas told the Reuters news agency.

Farewell to a melting glacier

Briny future for Malta

Phenomenon	Likelihood
Warmer days. Less cold days/nights	Virtually certain
More warm spells and heatwaves	Very likely
More heavy rain events	Very likely
More areas hit by drought	Likely
More intense tropical cyclones	Likely
More extreme sea levels (not tsunamis)	Likely

Probability definitions:
Virtually certain: over 99%
Very likely: over 90%
Likely: over 66%

SOURCE: IPCC

"This is another wake up call for governments, industry and individuals. We now have a clearer indication of the potential impact of global warming, some of which is already inevitable," said Martin Rees, president of the Royal Society.

"The challenge is now to support those people living in the most vulnerable areas so that they are able to adapt and improve their ways of life."

The wording of the summary of the report, which will be sent to world leaders in time for a G8 summit of industrialised nations in June, was finally decided after scientists and government officials from more than 100 countries worked through the night.

Several delegations, including the US, Saudi Arabia, China and India, had asked for the final version to reflect less certainty than the draft.

It is the second in a series of IPCC reports coming out this year, together making up its fourth global climate assessment.

The first element, on the science of climate change, released in February, concluded it was at least 90% likely that human activities are principally responsible for the warming observed since 1950.

The third part, due in May, will focus on ways of curbing the rise in greenhouse gas concentrations and temperature.

A fourth report in November will sum up all the findings.

Friday, 6 April 2007, 14:20 GMT 15:20 UK

Stark picture of a warming world

By Richard Black

Environment correspondent, BBC News website, in Brussels



Considering the fact they had been working intensively all through the night, the leaders of the UN panel on climate change were extraordinarily debonair and alert as they presented their conclusions to ranks of impatient journalists in the bright Brussels morning.

The chair of the Intergovernmental Panel on Climate Change Working Group II, Rajendra Pachauri, apologised for not having shaved - a light touch from the unflappable Indian, who sports a fine beard.

The general view, after five years of scientific work and four days of discussions here between senior scientists and

government bureaucrats, was that something pretty significant had been achieved.

"This report clearly assesses the impacts of climate change in different parts of the world," said Dr Pachauri.

"And we have far greater regional detail than in [our previous global assessment in] 2001 on things like glacier melting, and what the implications of that melting will be; on sea level rise, which clearly threatens a number of countries in the world including mega-deltas which are particularly vulnerable; and on agriculture, which has implications for food security."

'Observational evidence'

The extra detail is testament to the vast amount of scientific observation which has been undertaken in recent years. Twenty-nine thousand real-world observations were included in the analysis.

"There is observational evidence of regional impacts on every continent on physical and biological systems," said Cynthia Rosenzweig, a climate impacts specialist with the US space agency Nasa.

"There are multiple lines of evidence that human-induced climate change is happening now, and the impacts are being seen now."

Confidence maintained

This is pretty strong stuff; but not quite as strong as some would have liked.

The IPCC is an unusual organisation in that the evidence is supplied by scientists, but the summaries of its reports are agreed between scientists and representatives of governments.

Map: Climate change impact



Because of this, "climate sceptics" and "climate catastrophists" alike have regularly contended that the conclusions are unreliable - that scientists' drafts are altered through political pressure to make them either too weak or too strong, depending on which direction the criticism is coming from.

Here, a number of governments have sought to tone down the degrees of certainty on various issues.

The draft for this meeting started off by stating with "very high confidence" that natural systems on land and sea are being affected by regional climate changes, which was badly received by Saudi Arabia, Russia, and China.

Deadlock continued until the early hours of the final day's negotiations, with Dr Rosenzweig presenting a note of protest to the chair on behalf of senior scientists, saying that their evidence-based conclusions were being ignored.

At one point she left the room, and the whole process could have unravelled. In the end it was diplomatic leadership by the US, favoured bogeyman of activists, that found a compromise which everyone could live with.

"The final document states that observational evidence on every continent and most oceans shows that natural systems are being affected by regional changes, particularly temperature increases," she said.

"And I'm very happy with that."

High table

Martin Parry, one of the co-chairs of this working group, had this observation on what the involvement of government representatives means for the IPCC's significance.

"The real secret is that governments buy in," he said. "Otherwise it would be just another report."

Governments will soon have the conclusions thrust under their noses at an unprecedented level.

Later this month, the United Nations Security Council will discuss the security implications of climate change, the first time this has ever happened.



In June, the G8+5 group which includes the world's most powerful and populous nations will also have the IPCC's conclusions on their negotiating table.

"The science has come across as so strong and so confident in this report that really governments have nowhere to hide," commented Catherine Pearce, international climate campaigner with Friends of the Earth UK.

That presumes, though, that each government speaks with a single voice on climate change - and the reality is very different.

Hard arguments

Many governments, including the UK's, have environment departments which include enthusiasts for tough action on emissions, even at the expense of a little economic hardship.

These views might not be shared, though, in departments of finance, transport, energy and industry.

And the arguments can be quite hard to win in rich northern countries which, as the IPCC report acknowledged, may actually benefit from a modest amount of warming, and where resources are enough to defend against rising sea levels and shrinking rainfall.

It is in the poorest countries that the climate axe will fall. Every delegate here I spoke to was convinced of that.



"There is strong commitment (in this report) to understanding the adaptation needs of Africa," said Anthony Nyong from the International Development Research Centre in Nairobi, a lead author on the chapter on African impacts.

"[But] mitigation is always the best form of adaptation. There is no way that you can effectively adapt to all the impacts of climate change; it's absolutely impossible.

"So while we work at adapting, let the main emitters of greenhouse gases work on reducing their emissions."

It is a call we have heard many times before. And there is little evidence to believe that a report painting severe consequences ahead for the poor of the world, however detailed and bought into by governments, will be enough to bring unprecedented change from all the well-off members of the community of nations.

Friday, 6 April 2007, 15:30 GMT 16:30 UK

Climate change around the world

AFRICA



Some regions are likely to experience water shortages. Coupled with increasing demand, this is likely to result in large increases in the number of people at risk of water scarcity. It is likely to affect livelihoods, the report by the International Panel on Climate Change says.

Projected reductions in the area suitable for growing crops, and in the length of the growing season, are likely to produce an increased risk of hunger. In some countries, yields from rain-fed agriculture could be reduced by up to 50% by 2020.

Rising sea levels threaten large cities. Degradation of coral reefs and mangroves is likely, with impacts on local fisheries and tourism.

Rising temperatures, coupled with over-fishing, will decrease the supply of fish from large lakes, with important impacts on food supplies.

[Slow burn for Africa's climate](#)

[Global climate efforts 'woeful'](#)

[West must take climate burden](#)

[Climate change 'hitting Africa'](#)

ASIA



Glacier melting in the Himalayas is virtually certain to disrupt water supplies within the next 20 to 30 years. Floods and rock avalanches are virtually certain to increase. Heavily-populated coastal regions, including the deltas of rivers such as the Ganges and Mekong, are likely to be at risk of increased flooding.

Economic development is likely to be impacted by the combination of climatic change, urbanisation, and rapid economic and population growth.

Forecast changes in temperature and rainfall are likely to reduce crop yields overall, increasing the risk of hunger.

The presence of lethal diarrhoeal diseases associated with floods and droughts is expected to rise in East, South and Southeast Asia and rises in coastal water temperature could exacerbate cholera in South Asia.

[Climate change hits India's poor](#)

[Crops needed to avoid famines](#)

[Himalayan glaciers 'melting fast'](#)

[Fears for Bangladesh's future](#)

AUSTRALIA AND NEW ZEALAND



Ongoing water shortages, notably in southern and eastern Australia, are likely to get worse by 2030.

Ecologically important regions such as the Great Barrier Reef and Kakadu National Park are likely to lose a significant part of their wildlife before then, by 2020.

Some coastal communities are very likely to see an increased risk of coastal storms and flooding.

Temperature rises of 1C-2C are likely to bring benefits to cooler areas, such as New Zealand, in the form of longer growing seasons and reduced energy demand. Greater warming is likely to bring a net negative impact - such as increased risk of drought and fire.

[Climate change warning for Sydney](#)

[Howard says water key challenge](#)

EUROPE



Nearly all European regions are expected to be negatively affected by some future impacts of climate change.

Central and Eastern European countries could face less summer rainfall, causing higher water stress. Health risks due to heat waves are expected to increase. Forest productivity is expected to fall and the frequency of peatland fires to increase.

Southern European countries are very likely to see reduced water supplies, lower crop production, more wildfires and health impacts from increased heatwaves.

Northern countries are likely to benefit from increased crop yields, forest productivity, and food supplies from the North Atlantic. By 2020, most areas of Europe are likely to see an increased flood risk.

[EU seeks converts to eco-stoicism](#)

[Climate 'benefits' for UK farming](#)

[Is climate change to blame?](#)

[Dutch pioneer floating eco-homes](#)

LATIN AMERICA



Increasing temperatures and decreases in soil water in the eastern Amazon region would lead to replacement of tropical forest by savannah. Species extinctions are likely.

Drier areas are likely to see salinisation and desertification of agricultural land, with falling crop yields and livestock productivity reducing food security. However, soybean yields are likely to increase in temperate zones.

Sea level rise is very likely to bring flooding to low-lying regions such as the coast of El Salvador, Guyana and the Rio de la Plata estuary. Increasing sea temperatures are likely to impact coral reefs and south-east Pacific fish stocks.

Changes in rainfall patterns and the disappearance of glaciers are projected to significantly affect water availability for human consumption, agriculture and energy generation.

[Amazon 'faces deadly droughts'](#)

[Caribbean 'faces stormier future'](#)

[Farewell to a melting glacier](#)

[Diary: The Amazon rainforest](#)

NORTH AMERICA



Warming in western mountains is very likely to reduce snowpack, bringing more floods in winter and reduced water supplies in summer.

Increases in problems with pests, diseases and forest fires are likely.

Cities with a history of heat waves are likely to experience many more, with potential health impacts, especially for the elderly.

Rising sea levels, severe weather and storm surges, combined with population growth in coastal areas, are very likely to increase economic losses.

[Heat waves set to become 'brutal'](#)

[US CO2 emissions 'violate rights'](#)

[Global warming 'detected' in US](#)

[Climate hopes: US cities lead way](#)

POLAR REGIONS: ARCTIC AND ANTARCTICA



Reductions are likely in the thickness and extent of glaciers and ice sheets, and the extent of sea ice and permafrost.

The depth of summer permafrost melting is likely to increase.

Changes to natural ecosystems are likely to impact migrating birds, mammals and higher predators adversely. Specific ecosystems and habitats are expected to be vulnerable, as climatic barriers to species invasions are lowered.

There are virtually certain to be both negative and positive effects on Arctic peoples. Detrimental impacts would include those on infrastructure and traditional indigenous ways of life while beneficial effects would include reduced heating costs and more navigable northern sea routes.

[Arctic's new gold rush](#)

[Weird worms face threat](#)

[Earth - melting in the heat?](#)

['Warm' species invading Antarctic](#)

SMALL ISLANDS



Sea level rise is likely to worsen floods, storm surges and coastal erosion, with impacts on the socio-economic wellbeing of island communities.

Beach erosion and coral bleaching are likely to reduce tourism.

There is strong evidence that water resources in small islands are likely to be seriously compromised.

Increased invasion by non-native species is likely.

[What's so great about Vanuatu?](#)

[Beware tsunamis and climate](#)

[Tourism revival key for Maldives](#)

[Maldives: Paradise soon to be lost](#)

WATER



The supply of water is very likely to increase at higher latitudes and in some wet tropics, including populous areas in east and southeast Asia. It is very likely to decrease over much of the mid-latitudes and dry tropics, which are presently water-stressed areas.

Drought-affected areas will likely increase. Instances of extreme rainfall are likely to increase in frequency and intensity, raising the risk of floods. Increases in the frequency and severity of floods and droughts will have implications on sustainable development.

Water volumes stored in glaciers and snow cover are very likely to decline, reducing summer and autumn flows in regions where more than one sixth of the world population currently live.

[Map details global water stress](#)

ECOSYSTEMS



Many ecosystems are likely to be challenged beyond their capacity to adapt over the course of the century by an unprecedented combination of climate change, associated disturbances such as wildfires, and other aspects of modern-day global change.

In the second half of this century, ecosystems on land are likely to become a net source of carbon rather than a net absorber. This extra carbon will amplify climate change.

Roughly 20-30% of species are likely to be at high risk of irreversible extinction if the global average temperature rises by 1.5-2.5C beyond 1990 levels. For increases in global average temperature exceeding 1.5-2.5C, there are very likely to be major changes in ecosystems which will adversely effect the environmental goods and services which humans use.

[Arctic dips as global waters rise](#)

[Smoking out the world's lungs](#)

[Wolves 'good for ecosystems'](#)

FOOD



Crop yields are likely to increase at higher latitudes for global average temperature increases of up to 1-3C (depending on the crop), and then decrease beyond that. This is even after allowing for effects of CO₂ fertilisation.

At lower latitudes, especially the seasonally dry tropics, crop yield potential is likely to decrease for even small global temperature increases, which would increase risk of hunger.

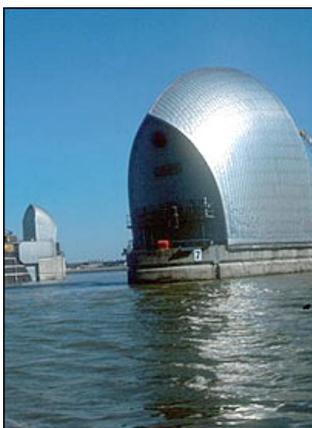
Global agricultural production potential is likely to increase with increases in global average temperature up to about 3C, but above this it is very likely to decrease.

Increased frequency of droughts and floods would affect local production negatively, especially in subsistence sectors at low latitudes.

[Farmer power key to advances](#)

[Pollution 'reducing rice harvest'](#)

COASTS



Coasts are very likely to be exposed to increasing risks due to climate change and sea level rise, and the effect will be exacerbated by increasing human-induced pressures on coastal areas.

It is likely that corals will experience a major decline due to increased bleaching and mortality due to rising seawater temperatures. Salt marshes and mangroves will also be negatively affected by sea-level rise.

Many millions more people are expected to be flooded every year due to sea-level rise by the 2080s, especially in densely populated and low-lying settlements which already face other challenges such as tropical storms or local coastal subsidence. The numbers affected will be largest in the mega-deltas of Asia, but small islands face the highest relative

increase in risk.

Flood threat to England and Wales

INDUSTRY



The benefits and costs of climate change for industry, settlement, and society will vary widely by location and scale. Some of the effects in temperate and polar regions will be positive, and others elsewhere will be negative. Generally, a higher degree of warming is more likely to bring negative consequences.

The most vulnerable industries, settlements and societies are those in coastal and river flood plains, those whose economies are closely linked with climate-sensitive resources, and those in areas prone to extreme weather events, especially where rapid urbanisation is occurring.

Poor communities can be especially vulnerable because they tend to be concentrated in relatively high-risk areas, have more limited coping capacities, and can be more dependent on climate-sensitive resources such as local water and food supplies. Where extreme weather events become more intense, the economic costs of those events will increase, and these increases are likely to be substantial in the areas most directly affected.

HEALTH



Projected climate change is likely to affect millions of people, particularly those with low capacity to adapt, through increases in malnutrition and consequent disorders.

This will have implications for child growth and development; increased deaths, disease and injury due to heat waves, floods, storms, fires and droughts, the altered burden of water-related diseases; the increased frequency of cardio-respiratory diseases due to higher concentrations of ground level ozone, and the movement of some infectious disease carriers into new regions. vectors.

Climate change is likely to have some mixed effects, such as the expansion and contraction of the range of malaria in different regions. In some places, climate change is likely to bring some benefits to health such as fewer deaths from cold

exposure.

IPCC definitions of probability of occurrence

Virtually certain: more than 99%
Extremely likely: more than 95%
Very likely: more than 90%
Likely: more than 66%
More likely than not: more than 50%
Very unlikely: less than 10%
Extremely unlikely: less than 5%

Monday, 3 July 2006, 22:59 GMT 23:59 UK

Slow burn for Africa's climate

ANALYSIS

By Richard Black

Environment correspondent, BBC News website

"Climate change is a serious and long-term challenge that has the potential to affect every part of the globe"
Gleneagles communique



With oft-repeated fanfare, Tony Blair and other British ministers declared Africa and climate change their priorities for the British G8 presidency in 2005.

So you might think that the communique and action plans from last July's Gleneagles summit would be full of promises to help the world's poorest continent deal with the planet's most serious long-term environmental issue.

And you would be right.

Between them, the Gleneagles documents pledge to:

- Help Africa "improve resilience and integrate adaptation goals into sustainable development strategies"
- Work to increase the use of renewable energy within the continent
- Strengthen the Clean Development Mechanism, a Kyoto Protocol process with the potential to help poor countries set up renewable energy facilities
- Work to tackle illegal logging
- Improve Africa's capacity for environmental and climatic research

These are clearly issues for the long term; the best will and the best resources in the world cannot suddenly protect a continent against climate change, or swap its fossil fuel plants for solar panels overnight.

Nevertheless, it is worth asking what has happened in that single year? What have the G8 countries done to follow through on their pledges?

If this year is too early for change to arrive, do we at least have firm indications that it is on the way?

Urgent issues

At the end of June, the United Nations Environment Programme (Unep) released its second Environment Outlook for Africa.



It too speaks of the key role of carbon-free energy in economic development and environmental protection.

"I think in the last year what has happened is increasing awareness about the need to research about renewable energy and the primary energy supply," says Njeri Wamukonya, an energy programme officer with Unep and one of the report's

authors.

"The area that has been advancing is hydropower. There's been increasing investment in various countries including Rwanda; and Ethiopia has a major programme to increase its hydro capacity and export it to Kenya."

But only about 5% of Africa's hydropower potential is exploited, Unep contends, with Western agencies reluctant to invest.

In East Africa, there is growing interest in geothermal energy, with the Kenyan government setting in train projects to explore the potential of the hot rocks lying below the floor of the Rift Valley.

Uptake of other technologies remains marginal, with the relatively low availability of wind and the high cost of solar panels making them unattractive.

Kyoto calling

The Clean Development Mechanism (CDM) is designed to ease such technologies into the world's poorer regions.

Under the Kyoto Protocol, richer nations with emissions targets to meet can choose instead to invest in clean energy systems in developing countries, receiving carbon credits for so doing. It is a win-win concept.

"In terms of Africa there is a need to create a more equitable distribution of CDM projects"

Joanna Lewis, Pew Center

There was some discussion of the CDM at the Gleneagles meeting a year ago, and substantially more at the UN Climate Change Convention summit at the end of the year.

Since the Montreal summit, things have changed, with extra resources given to the CDM centrally.

At the beginning of June, indeed, the UN announced that it had registered CDM projects equivalent to the annual emissions of Britain and Spain combined.

But where are these projects?

"The leading countries are India, China and Brazil," says Joanna Lewis, a senior international fellow at the Pew Center on Global Climate Change in Washington DC.

"In terms of Africa there is a need to create a more equitable distribution of CDM projects."

Of 210 projects registered at the beginning of June, only five were in Africa.

As yet, then, the CDM is not bringing Africa the renewable energy revolution promised at Gleneagles.

Trading timber

Reducing illegal logging, another of the Gleneagles pledges, would bring a number of benefits to Africa, including some amelioration of human-induced climate change.

Here the European Union has been taking a lead through the Forest Law Enforcement, Governance and Trade (Flegt) programme, a series of bilateral initiatives between timber producing and timber consuming countries.

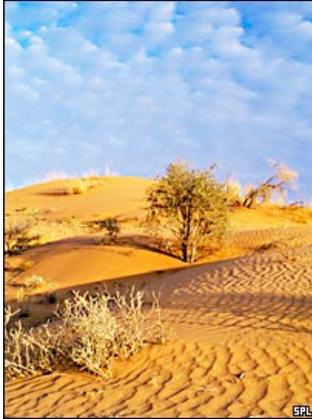
Flegt was discussed in G8 circles in the run-up to Gleneagles, and G8 ministers did commit to help developing nations combat illegal logging and to introduce or modify import policies, albeit in such general terms that a firm promise is hard to find.

But while the removal of wood from forests in Asia is decreasing, in Africa it is increasing, according to the UN.

Adapt and survive

Africa to face more droughts

Climate change to dry Africa



Unep believes firmly that environmental protection is not just about some abstract good; it is about people, economies, and sustainable livelihoods.

Climate change, it says, threatens all of these; and Africa should be helped to adapt, as the G8 pledged.

The clear subtext of the G8 premise was that Africa could be helped in isolation; that specific programmes aimed at poverty alleviation and environmental protection could safeguard the future of a continent buffeted by global trends.

But climate change, of all environmental issues, is global in nature. Emissions reductions, wherever they are made, will reduce the climatic alterations which promise much of the continent a warmer, dryer future.

Has the G8 made much difference to greenhouse gas emissions globally? Not really; and it never could, given that the richest and most powerful of its members, the US, makes no pledges on the issue, and that many of its other members may fail to meet their Kyoto Protocol commitments.

And with the future of the protocol in doubt beyond 2012, the current rush to develop CDM projects may, says Joanna Lewis, ease off soon.

Statist solutions



But perhaps the worst accusation against the G8 club of rich nations is that they are themselves buffeting Africa with stronger winds than it can stand, even as they proffer a helping hand.

The role of the World Trade Organization, the theologies of the IMF and World Bank, and the impacts of market liberalisation all attract the ire of some expert observers.

Njeri Wamukonya sees privatisation of the energy supply as a particular problem for Africa.

"That has been a major factor in delaying investment," she says.

With the best will in the world, G8 governments are not going to reverse the trend of 20 years and urge African governments towards state-directed solutions for their energy supplies.

They can admit no alternative to the view that markets, admixed with a little aid and legislation, can solve the continent's environmental problems as well as its economic ones.

That is a thesis which remains to be examined in the climatically stressed years ahead.

Thursday, 9 November 2006, 13:00 GMT

Global climate efforts 'woeful'

UN: End 'water apartheid'



Efforts to help developing nations adapt to the impacts of climate change have been called "woefully inadequate" by a UN-commissioned report.

Rich countries have focused on ways to reduce carbon emissions but have largely ignored helping poor nations cope with the consequences, it says.

The findings appear in the UNDP's Human Development Report 2006.

The authors say farmers whose crops are reliant on rainfall are already having to cope with unpredictable weather.

The report, called *Beyond Scarcity: Power, Poverty and the Global Water Crisis*, says climate change "now poses what may be an unparalleled threat to human development".

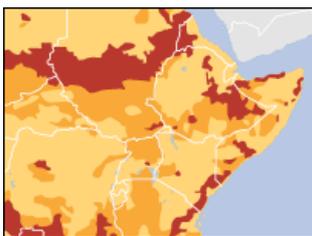
"The adaptation agenda is somewhere between embryonic and heavily under-developed"

Kevin Watkins,
Report's lead author

Lead author Kevin Watkins said people living in vulnerable conditions were already having to adapt.

"There is a lot of evidence that the droughts in the Horn of Africa this year are connected to climate change," he told reporters. "This is not an issue for 50 years down the road, it is an issue for today."

Mr Watkins added that the worst affected areas were regions with very limited water infrastructures, such as Sub-Saharan Africa.



"It is not a region that has the irrigation capacity or the water harvesting capacity to store water in ways that can smooth out irregularities in supply," he observed.

"More than 90% of people living in rural Sub-Saharan Africa are dependent on rain-fed agriculture, so what happens to rain and moisture content in the soil has very profound and immediate implications for poverty."

He warned that crops yields could fall by a third or more in some regions.

Climate concerns

While the outcomes may vary from country-to-country, the report said some "broad consequences" could be predicted:

- agriculture and rural development will bear the brunt of climate risk
- extreme poverty and malnutrition will increase as water insecurity increases
- more extreme weather patterns will increase the risk of floods and droughts
- shrinking glaciers and rising sea levels will reduce access to fresh water

Because industrialised nations have focused their climate change initiatives on reducing the amount of greenhouse gases

being pumped into the atmosphere, support for adaptation in developing countries has been "piecemeal and fragmented", the report says.

Global water stress map



It calls the international response "woefully inadequate", because of the lack of serious investment by nations in adaptation projects.

"The adaptation agenda is somewhere between embryonic and heavily under-developed," Mr Watkins said.

"Funding... under the Kyoto Protocol currently amounts to \$20m annually; so this is something that, as part of the multilateral negotiations, has not had any weight attached to it."

He also said that adaptation funding through the Global Environment Facility (GEF) would be about \$50m over the next three years.

"What we are facing is one of the potentially biggest set-backs to human development in Africa in the past 100 years or more, and the response from the international community to date has been \$70m," Mr Watkins said.

'Climate-proof'

The latest round of international negotiations on tackling climate change is currently underway in Nairobi, and the issue of adaptation is expected to be high on the agenda.

SEE THE FULL REPORT

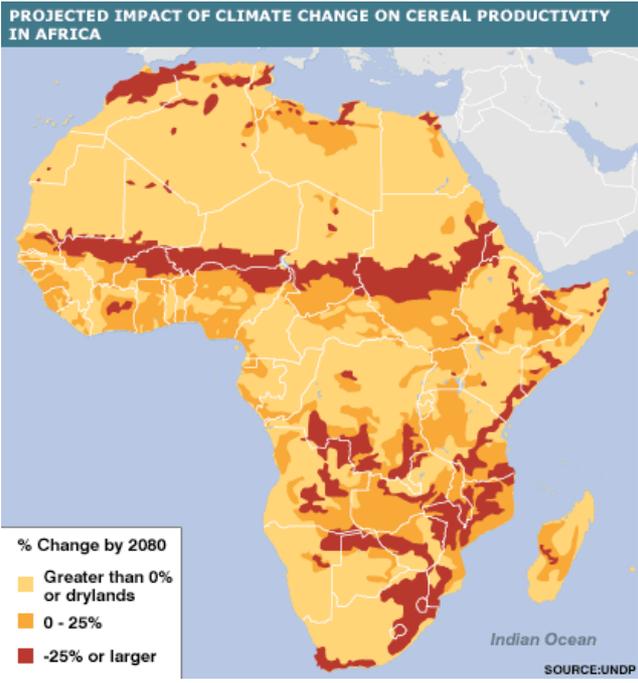
Most computers will open this document automatically, but you may need Adobe Reader

At the start of the global gathering in the Kenyan capital, the United Nations Framework Convention on Climate Change (UNFCCC) published a report that described global warming as a serious threat to Africa.

It listed a series of reasons why measures to help African countries "climate-proof" their societies, economies and infrastructure was widely seen as vital.

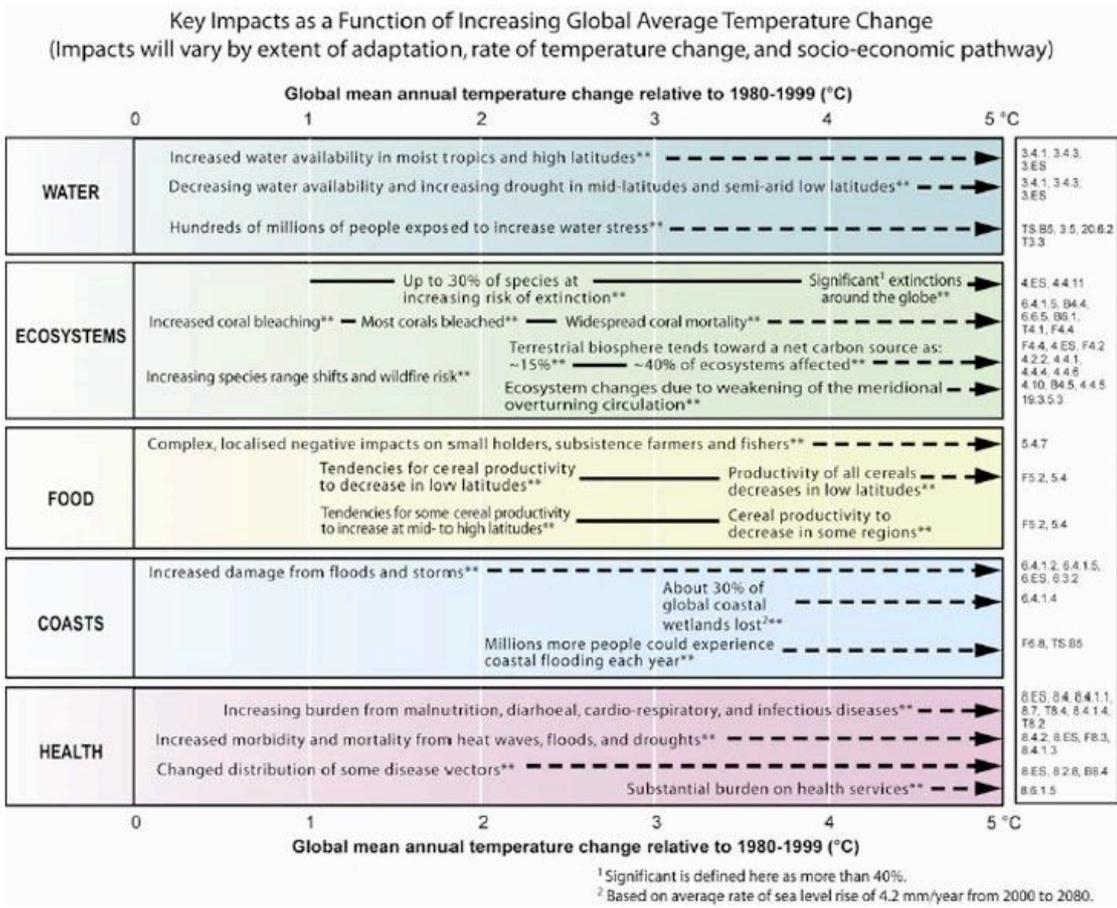
Next week sees the start of the high-level segment of the conference, where any new agreement on adaptation would be reached.

Kevin Watkins hoped the talks would deliver the funding and strategies needed for people living in vulnerable rural areas: "Their future critically depends upon the international community getting serious about adaptation."



Climate change is here now, says major report

- 12:58 06 April 2007
 - NewScientist.com news service
 - Catherine Brahic, Brussels
- Print Send Feeds



The IPCC report highlights the key impacts expected for increasing global average temperatures (Illustration: IPCC)Enlarge

Climate change is not a future problem but a present one that must be tackled now, concludes the latest chapter of a major climate report.

The report details how different amounts of global warming, ranging from 0°C to 5°C will impact on human society. It also underlines that those who will be most affected are the poor people who are least responsible for increasing levels of greenhouse gas emissions in the atmosphere. Read the [summary for policy makers \(PDF\)](#).

The summary of the latest publication from the Intergovernmental Panel on Climate Change (IPCC) was released in Brussels, Belgium, on Friday. It says a two-pronged approach is needed to minimise the crippling effects of global warming on human society.

Firstly, governments need to put in place measures to adapt human settlements to the immediate and unavoidable impacts of climate change, which are already being witnessed around the world. These impacts include diminished agricultural productivity in some areas, stronger storms, a higher likelihood of drought and heat waves, and the long-term dwindling of water supplies as mountain glaciers melt.

Adaptive measures would include building dikes to protect coastal developments from sea-level rises and sowing genetically modified crops that can grow with less water. But even these measures will be overwhelmed in future if governments do not agree now to minimise human greenhouse gas emissions, warn the report's authors.

Real observations

"The latest IPCC chapter is the first to use observations of the Earth's climate rather than predictions of possible future scenarios to conclude that climate change is real," says Saleem Huq, of the International Institute for Environment and Development and one of the chapter's lead authors.

"Ten years ago, we said there was a detectable effect of climate change," said Martin Parry of the UK's MetOffice. He chaired the group of 441 scientists who synthesised five years of research into the chapter.

"Five years ago, we said we could detect a regional impact of climate change," he continued. "Now, we have reviewed 29,000 data sets, and 90% of them show that changes happening worldwide are due to climate change."

These changes include early flowering seasons, changes in agricultural productivity and changes in insect migrations, but also the intensity of heat waves and storms.

Huq says it is impossible to say with certainty that climate change is the cause of any single hurricane, heat wave, flood or drought. "But, taken together, the increase in frequency and intensity of such events during the last decade of the 20th century provides strong evidence that climate change is already occurring and is no longer a problem of the future."

Looking into the future, the report predicts:

- A 2°C rise from today's temperatures will cause the extinction of 30% of species
- A 3°C warming will lead to widespread coral deaths
- Water availability in the moist tropics and in the high latitudes will increase, but will drop in the semi-arid low latitudes
- Between 2°C and 3°C warming will increase agricultural yields in the high latitudes, but yields will then decrease with higher global temperatures
- A 1°C warming will decrease agricultural yields in the low-latitudes

"That is exactly what we do not want," says Parry, because countries in the low-latitudes tend to be poor and ill-equipped to adapt to these effects of climate change.

Through the night

Researchers involved in writing the chapter have been in discussions with government delegates since Monday 2 April approving every word and figure in the chapter's summary for policymakers. Discussions went through the night from Thursday to Friday morning and only ended well after the summary had been due to be released.

Researchers told **New Scientist** that the delegation from Saudi Arabia has been particularly assiduous in its criticism of the report's wording. One main contention related to a figure which attempted to show how impacts could be limited by limiting greenhouse gas emissions. The figure was eventually dropped and replaced with a table showing the likely impacts of different degrees of warming.

The new chapter is the second of the IPCC's new climate change report which is being approved and released in stages throughout 2007. The first chapter was released in February and concluded that [there was a 90% chance that human greenhouse gas emissions have warmed the planet](#). This second chapter looks at the effects of that warming.

Chapter three will focus on the likely effects of limiting greenhouse gas emissions and will be released on 4 May. A final synthesis chapter will be released on 16 November.

The IPCC reports are widely considered to be the most authoritative written on climate change. They consider the latest scientific evidence and are written and reviewed by thousands of the world's leading climate scientists. Their conclusions are then discussed and finalised by representatives of 190 national governments.

Climate Change - Want to